SEQUENCE LISTING

<110> Afar, Daniel
Hubert, Rene S.
Leong, Kahan
Raitano, Arthur B.
Saffran, Douglas C.
Mitchell, Steve Chappell

<120> NOVEL SERPENTINE TRANSMEMBRANE ANTIGENS
EXPRESSED IN HUMAN CANCERS AND USES THEREOF

<130> 511582001601

<140> US 10/010,667
<141> 2001-12-06

<150> 09/323,873
<151> 1999-06-01

<150> 60/087,520
<151> 1998-06-01

<150> 60/091,183
<151> 1998-06-30

<160> 32

<170> FastSEQ for Windows Version 4.0

<210> 1
<211> 1195
<212> DNA
<213> Homo Sapiens

<400> 1
```
ccgagactca cggtcaagct aaggcgaaga gtgggtggct gaagccatac tattttatag      60
aattaatgga aagcagaaaa gacatcacaa accaagaaga actttggaaa atgaagccta     120
ggagaaattt agaagaagac gattatttgc ataaggacac gggagagacc agcatgctaa     180
aaagacctgt gcttttgcat ttgcaccaaa cagcccatgc tgatgaattt gactgccctt     240
cagaacttca gcacacacag gaactctttc cacagtggca cttgccaatt aaaatagctg     300
ctattatagc atctctgact tttctttaca ctcttctgag ggaagtaatt cacccttttag    360
caacttccca tcaacaatat ttttataaaa ttccaatcct ggtcatcaac aaagtcttgc     420
caatggtttc catcactctc ttggcattgg tttacctgcc aggtgtgata gcagcaattg     480
tccaacttca taatggaacc aagtataaga agtttccaca ttggttggat aagtggatgt     540
taacaagaaa gcagtttggg cttctcagtt tctttttgc tgtactgcat gcaatttata      600
gtctgtctta cccaatgagg cgatcctaca gatacaagtt gctaaactgg gcatatcaac     660
aggtccaaca aaataaagaa gatgcctgga ttgagcatga tgtttggaga atggagattt     720
atgtgtctct gggaattgtg ggattggcaa tactggctct gttggctgtg acatctattc     780
catctgtgag tgactctttg acatggagag aatttcacta tattcagagc aagctaggaa     840
ttgtttccct tctactgggc acaatacacg cattgatttt tgcctggaat aagtggatag     900
atataaaaca atttgtatgg tatacacctc caacttttat gatagctgtt ttccttccaa     960
ttgttgtcct gatatttaaa agcatactat tcctgccatg cttgaggaag aagatactga    1020
agattagaca tggttgggaa gacgtcacca aaattaacaa aactgagata tgttcccagt    1080
tgtagaatta ctgtttacac acattttgt tcaatattga tatattttat caccaacatt     1140
```

tcaagtttgt atttgttaat aaaatgatta ttcaaggaaa aaaaaaaaaa aaaaa   1195

<210> 2
<211> 339
<212> PRT
<213> Homo sapiens

<400> 2

Met	Glu	Ser	Arg	Lys	Asp	Ile	Thr	Asn	Gln	Glu	Glu	Leu	Trp	Lys	Met
1				5					10					15	

Met Glu Ser Arg Lys Asp Ile Thr Asn Gln Glu Glu Leu Trp Lys Met
1   5   10   15
Lys Pro Arg Arg Asn Leu Glu Glu Asp Asp Tyr Leu His Lys Asp Thr
        20   25   30
Gly Glu Thr Ser Met Leu Lys Arg Pro Val Leu Leu His Leu His Gln
        35   40   45
Thr Ala His Ala Asp Glu Phe Asp Cys Pro Ser Glu Leu Gln His Thr
    50   55   60
Gln Glu Leu Phe Pro Gln Trp His Leu Pro Ile Lys Ile Ala Ala Ile
65   70   75   80
Ile Ala Ser Leu Thr Phe Leu Tyr Thr Leu Leu Arg Glu Val Ile His
            85   90   95
Pro Leu Ala Thr Ser His Gln Gln Tyr Phe Tyr Lys Ile Pro Ile Leu
            100   105   110
Val Ile Asn Lys Val Leu Pro Met Val Ser Ile Thr Leu Leu Ala Leu
            115   120   125
Val Tyr Leu Pro Gly Val Ile Ala Ala Ile Val Gln Leu His Asn Gly
    130   135   140
Thr Lys Tyr Lys Lys Phe Pro His Trp Leu Asp Lys Trp Met Leu Thr
145   150   155   160
Arg Lys Gln Phe Gly Leu Leu Ser Phe Phe Phe Ala Val Leu His Ala
            165   170   175
Ile Tyr Ser Leu Ser Tyr Pro Met Arg Arg Ser Tyr Arg Tyr Lys Leu
            180   185   190
Leu Asn Trp Ala Tyr Gln Gln Val Gln Gln Asn Lys Glu Asp Ala Trp
            195   200   205
Ile Glu His Asp Val Trp Arg Met Glu Ile Tyr Val Ser Leu Gly Ile
    210   215   220
Val Gly Leu Ala Ile Leu Ala Leu Leu Ala Val Thr Ser Ile Pro Ser
225   230   235   240
Val Ser Asp Ser Leu Thr Trp Arg Glu Phe His Tyr Ile Gln Ser Lys
            245   250   255
Leu Gly Ile Val Ser Leu Leu Leu Gly Thr Ile His Ala Leu Ile Phe
            260   265   270
Ala Trp Asn Lys Trp Ile Asp Ile Lys Gln Phe Val Trp Tyr Thr Pro
            275   280   285
Pro Thr Phe Met Ile Ala Val Phe Leu Pro Ile Val Val Leu Ile Phe
    290   295   300
Lys Ser Ile Leu Phe Leu Pro Cys Leu Arg Lys Lys Ile Leu Lys Ile
305   310   315   320
Arg His Gly Trp Glu Asp Val Thr Lys Ile Asn Lys Thr Glu Ile Cys
            325   330   335
Ser Gln Leu

<210> 3
<211> 111
<212> DNA
<213> Homo sapiens

<400> 3
ggcggaggcg gaggcggagg gcgaggggcg gggagcgccg cctggagcgc ggcaggtcat   60
attgaacatt ccagatacct atcattactc gatgctgttg ataacagcaa g   111

<210> 4
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 4
actttgttga tgaccaggat tgga   24

<210> 5
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 5
cagaacttca gcacacacag gaac   24

<210> 6
<211> 3627
<212> DNA
<213> Homo sapiens

<400> 6
ggggcccgca cctctgggca gcagcggcag ccgagactca cggtcaagct aaggcgaaga   60
gtgggtggct gaagccatac tattttatag aattaatgga aagcagaaaa gacatcacaa   120
accaagaaga actttggaaa atgaagccta ggagaaattt agaagaagac gattatttgc   180
ataaggacac gggagagacc agcatgctaa aaagacctgt gcttttgcat ttgcaccaaa   240
cagcccatgc tgatgaattt gactgccctt cagaacttca gcacacacag gaactctttc   300
cacagtggca cttgccaatt aaaatagctg ctattatagc atctctgact tttctttaca   360
ctcttctgag ggaagtaatt cacccttag caacttccca tcaacaatat ttttataaaa   420
ttccaatcct ggtcatcaac aaagtcttgc caatggtttc catcactctc ttggcattgg   480
tttacctgcc aggtgtgata gcagcaattg tccaacttca taatggaacc aagtataaga   540
agtttccaca ttggttggat aagtggatgt taacaagaaa gcagtttggg cttctcagtt   600
tcttttttgc tgtactgcat gcaatttata gtctgtctta cccaatgagg cgatcctaca   660
gatacaagtt gctaaactgg gcatatcaac aggtccaaca aaataaagaa gatgcctgga   720
ttgagcatga tgtttggaga atggagattt atgtgtctct gggaattgtg ggattggcaa   780
tactggctct gttggctgtg acatctattc catctgtgag tgactctttg acatggagag   840
aatttcacta tattcaggta aataatatat aaaataaccc taagaggtaa atcttctttt   900
tgtgtttatg atatagaata tgttgacttt accccataaa aaataacaaa tgttttcaa   960
cagcaaagat cttatacttg ttccaattaa taatgtgctc tcctgttgtt ttccctattg   `1020
cttctaatta ggacaagtgt ttcctagaca taaataaaag gcattaaaat attctttgtt   1080
ttttttttt tgtttgtttg ttttttgttt gtttgtttgt ttttttgaga tgaagtctcg   1140
ctctgttgcc catgctggag tacagtggca cgatctcggc tcactgcàac ctgcgcctcc   1200
tgggttcagg cgattctctt gcctcagcct cctgagtagc tgggattaca ggcacccatc   1260
accatgtcca gctaattttt gtattttag tagagacagg gttttcccat gttggccagg   1320
ctggtctcga tctcctgacc tcaaatgatc cgcccacctc ggcctcccaa agtgctggga   1380
tgacagttgt gagccaccac actcagcctg ctctttctaa tatttgaaac ttgttagaca   1440

```
atttgctacc catctaatgt gatattttag gaatccaata tgcatggttt attatttctt    1500
aaaaaaaata ttcttttacc tgtcacctga atttagtaat gccttttatg ttacacaact    1560
tagcactttc cagaaacaaa aactctctcc ttgtttccagct tacatttat atacttactc    1620
atatgctagt gtctcatttc aaaggctgct ttttccagct tacattttat atacttactc    1680
acttgaagtt tctaaatatt cttgtaattg taaaactatc tcagatttac tgaggtttat    1740
cttctggtgg tagattatcc ataagaagag tgatgtgcca gaatcactct gggatccttg    1800
tctgacaaga ttcaaaggac taaatttaat tcagtcatga acactgccaa ttaccgttta    1860
tgggtagaca tctttggaaa tttccacaag gtcagacatt cgcaactatc ccttctacat    1920
gtccacacgt atactccaac actttattag gcatctgatt agtttggaaa gtatgcctcc    1980
atctgaatta gtccagtgtg gcttagagtt ggtacaacat tctcacagaa tttcctaatt    2040
ttgtaggttc agcctgataa ccactggagt tctttggtcc tcattaaata gctttcttca    2100
cacattgctc tgcctgttac acatatgatg aacactgctt tttagacttc attaggaatt    2160
taggactgca tcttgacaac tgagcctatt ctactatatg tacaatacct agcccataat    2220
aggtatacaa tacacatttg gtaaaactaa ttttcaacca atgacatgta tttttcaact    2280
agtaacctag aaatgtttca cttaaaatct gagaactggt tacactacaa gttaccttgg    2340
agattcatat atgaaaacgc aaacttagct atttgattgt attcactggg acttaagaat    2400
gcgcctgaat aattgtgagt tcgatttgtt ctggcaggct aatgaccatt tccagtaaag    2460
tgaatagagg tcagaagtcg tataaaagag gtgttgtcag aacaccgttg agattacata    2520
ggtgaacaac tatttttaag caactttatt tgtgtagtga caaagcatcc caatgcaggc    2580
tgaaatgttt catcacatct ctggatctct ctattttgtg cagacattga aaaaattgtt    2640
catattattt ccatgttatc agaatatttg attttttaaa aacataggcc aagttcattc    2700
acttcattat tcatttatca aaatcagagt gaatcacatt agtcgccttc acaactgata    2760
aagatcactg aagtcaaatt gattttttgct ataatcttca atctacctat atttaattga    2820
gaatctaaaa tgtacaaatc attgtgttga ttctgcagtg atcctgctat aagtaagact    2880
cagtccctga ttttaggtat cctgtgaaaa gcagaattaa gacaaataca caagagacaa    2940
agcacaaaaa ataaatatca taggggatg aacaaaatgg tggagaaaga gtagacaaag    3000
ttttttgatca cctgccttca aagaaaggct gtgaattttg ttcacttaga cagcttggag    3060
acaagaaatt acccaaaagt aaggtgagga ggataggcaa aaagagcaga aagatgtgaa    3120
tggacattgt tgagaaatgt gataggaaaa caatcataga taaaggattt ccaagcaaca    3180
gagcatatcc agatgaggta ggatgggata aactcttatt gaaccaatct tcaccaattt    3240
tgtttttctt ttgcagagca agctaggaat tgtttccctt ctactgggca caatacacgc    3300
attgattttt gcctggaata agtggataga tataaaacaa tttgtatggt atacacctcc    3360
aactttatg atagctgttt tccttccaat tgttgtcctg atatttaaaa gcatactatt    3420
cctgccatgc ttgaggaaga agatactgaa gattagacat ggttgggaag acgtcaccaa    3480
aattaacaaa actgagatat gttcccagtt gtagaattac tgtttacaca catttttgtt    3540
caatattgat atattttatc accaacattt caagtttgta tttgttaata aaatgattat    3600
tcaaggaaaa aaaaaaaaa aaaaaaa                                          3627
```

<210> 7
<211> 519
<212> DNA
<213> Homo sapiens

<400> 7
```
gactttaca aaaattcctat agagattgtg aataaaacct tacctatagt tgccattact     60
ttgctctccc tagtatacct cgcaggtctt ctggcagctg cttatcaact ttattacggc    120
accaagtata ggagatttcc accttggttg gaaacctggt tacagtgtag aaaacagctt    180
ggattactaa gttttttctt cgctatggtc catgttgcct acagcctctg cttaccgatg    240
agaaggtcag agagatattt gtttctcaac atggcttatc agcaggttca tgcaaatatt    300
gaaaactctt ggaatgagga agaagtttgg agaattgaaa tgtatatctc ctttggcata    360
atgagccttg cttactttc cctcctggca gtcacttcta tcccttcagt gagcaatgct    420
ttaaactgga gagaattcag ttttattcag tctacacttg gatatgtcgc tctgctcata    480
agtactttcc atgtttttaat ttatggatgg aaacgagct                          519
```

<210> 8
<211> 173
<212> PRT

4

<213> Homo sapiens

<400> 8
```
Asp Phe Tyr Lys Ile Pro Ile Glu Ile Val Asn Lys Thr Leu Pro Ile
1               5                   10                  15
Val Ala Ile Thr Leu Leu Ser Leu Val Tyr Leu Ala Gly Leu Leu Ala
            20                  25                  30
Ala Ala Tyr Gln Leu Tyr Tyr Gly Thr Lys Tyr Arg Arg Phe Pro Pro
            35                  40                  45
Trp Leu Glu Thr Trp Leu Gln Cys Arg Lys Gln Leu Gly Leu Leu Ser
    50                  55                  60
Phe Phe Phe Ala Met Val His Val Ala Tyr Ser Leu Cys Leu Pro Met
65                  70                  75                  80
Arg Arg Ser Glu Arg Tyr Leu Phe Leu Asn Met Ala Tyr Gln Gln Val
                85                  90                  95
His Ala Asn Ile Glu Asn Ser Trp Asn Glu Glu Glu Val Trp Arg Ile
                100                 105                 110
Glu Met Tyr Ile Ser Phe Gly Ile Met Ser Leu Gly Leu Leu Ser Leu
        115                 120                 125
Leu Ala Val Thr Ser Ile Pro Ser Val Ser Asn Ala Leu Asn Trp Arg
        130                 135                 140
Glu Phe Ser Phe Ile Gln Ser Thr Leu Gly Tyr Val Ala Leu Leu Ile
145                 150                 155                 160
Ser Thr Phe His Val Leu Ile Tyr Gly Trp Lys Arg Ala
                165                 170
```

<210> 9
<211> 322
<212> DNA
<213> Homo sapiens

<400> 9
```
ggtcgacttt tcctttattc ctttgtcaga gatctgattc atccatatgc tagaaaccaa       60
cagagtgact tttacaaaat tcctatagag attgtgaata aaaccttacc tatagttgcc      120
attactttgc tctccctagt ataccttgca ggtcttctgg cagctgctta tcaactttat      180
tacggcacca agtataggag atttccacct tggttggaaa cctggttaca gtgtagaaaa      240
cagcttggat tactaagttg tttcttcgct atggtccatg ttgcctacag cctctgctta      300
ccgatgagaa ggtcagagag at                                               322
```

<210> 10
<211> 183
<212> DNA
<213> Homo sapiens

<400> 10
```
tttgcagctt tgcagatacc cagactgagc tggaactgga atttgtcttc ctattgactc       60
tacttcttta aaagcggctg cccattacat tcctcagctg tccttgcagt taggtgtaca      120
tgtgactgag tgttggccag tgagatgaag tctcctcaaa ggaaggcagc atgtgtcctt      180
ttt                                                                    183
```

<210> 11
<211> 448
<212> DNA
<213> Homo sapiens

<400> 11
```
aagaaggaga atccatttag cacctcctca gcctggctca gtgattcata tgtggctttg       60
```

5

```
ggaatacttg ggttttttct gtttgtactc ttgggaatca cttctttgcc atctgttagc    120
aatgcagtca actggagaga gttccgattt gtccagtcca aactgggtta tttgaccctg    180
atcttgtgta cagcccacac cctggtgtac ggtgggaaga gattcctcag cccttcaaat    240
ctcagatggt atcttcctgc agcctacgtg ttagggctta tcattccttg cactgtgctg    300
gtgatcaagt ttgtcctaat catgccatgt gtagacaaca cccttacaag gatccgccag    360
ggctgggaaa ggaactcaaa acactagaaa aagcattgaa tggaaaatca atatttaaaa    420
caaagttcaa tttagctgga aaaaaaaa                                       448
```

```
<210> 12
<211> 401
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(401)
<223> n = A,T,C or G

<400> 12
ggccgcggca nccgctacga cctggtcaac ctggcagtca agcaggtctt ggccanacaa     60
gagccacctc tgggtgaagg aggaggtctg gcggatggag atctacctct ccctgggagt    120
gctggccctc ggcacgttgt ccctgctggc cgtgacctca ctgccgtcca ttgcaaactc    180
gctcaactgg agggagttca gcttcgttca gtcctcactg ggctttgtgg ccntcgtgct    240
gagcacactn cacacgctca cctacggctg gacccgcgcc ttcgaggaga gccgctacaa    300
gttctacctn cctcccacct tcacgntcac gctgctggtg ccctgcgttc gttcatcctg    360
ggccaaagcc ctgtttntac tgccttgcat tcagccgnag a                        401
```

```
<210> 13
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> RT-PCR Primer AI139607.1

<400> 13
ttaggacaac ttgatcacca gca                                             23
```

```
<210> 14
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> RT-PCR primer AI139607.2

<400> 14
tgtccagtcc aaactggggtt attt                                           24
```

```
<210> 15
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> RT-PCR primer R80991.1
```

<400> 15
agggagttca gcttcgttca gtc   23

<210> 16
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> RT-PCR primer R80991.2

<400> 16
ggtagaactt gtagcggctc tcct   24

<210> 17
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> RT-PCR primer 98P4B6.1

<400> 17
gactgagctg gaactggaat ttgt   24

<210> 18
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> RT-PCR primer 98P4B6.2

<400> 18
tttgaggaga cttcatctca ctgg   24

<210> 19
<211> 22
<212> PRT
<213> Artificial Sequence

<220>
<223> STEAP-1 peptide

<400> 19
Arg Glu Val Ile His Pro Leu Ala Thr Ser His Gln Gln Tyr Phe Tyr
 1   5   10   15
Lys Ile Pro Ile Leu Val
            20

<210> 20
<211> 34
<212> PRT
<213> Artificial Sequence

<220>
<223> STEAP-1 peptide

7

<400> 20
Arg Arg Ser Tyr Arg Tyr Lys Leu Leu Asn Trp Ala Tyr Gln Gln Val
1   5   10   15
Gln Gln Asn Lys Glu Asp Ala Trp Ile Glu His Asp Val Trp Arg Met
            20   25   30
Glu Ile

<210> 21
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> STEAP-1 PEPTIDE

<400> 21
Trp Ile Asp Ile Lys Gln Phe Val Trp Tyr Thr Pro Pro Thr Phe
1   5   10   15

<210> 22
<211> 14
<212> DNA
<213> Artificial Sequence

<220>
<223> cDNA Synthesis primer

<400> 22
ttttgtacaa gctt   14

<210> 23
<211> 44
<212> DNA
<213> Artificial Sequence

<220>
<223> DNA Adaptor 1

<400> 23
ctaatacgac tcactatagg gctcgagcgg ccgcccgggc aggt   44

<210> 24
<211> 42
<212> DNA
<213> Artificial Sequence

<220>
<223> DNA Adaptor 2

<400> 24
gtaatacgac tcactatagg gcagcgtggt cgcggccgag gt   42

<210> 25
<211> 22
<212> DNA

<213> Artificial Sequence

<220>
<223> PCR primer 1

<400> 25
ctaatacgac tcactatagg gc   22

<210> 26
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Nested primer (NP) 1

<400> 26
tcgagcggcc gcccgggcag gt   22

<210> 27
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Nested primer (NP) 2

<400> 27
agcgtggtcg cggccgaggt   20

<210> 28
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> RT-PCR primer 1A

<400> 28
actttgttga tgaccaggat tgga   24

<210> 29
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> RT-PCR primer 1B

<400> 29
cagaacttca gcacacacag gaac   24

<210> 30
<211> 25
<212> DNA
<213> Artificial Sequence

```
<220>
<223> primer

<400> 30
atatcgccgc gctcgtcgtc gacaa                                    25

<210> 31
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 31
agccacacgc agctcattgt agaagg                                   26

<210> 32
<211> 15
<212> PRT
<213> Homo sapiens

<400> 32
Tyr Gln Gln Val Gln Gln Asn Lys Glu Asp Ala Trp Ile Glu His
 1               5                  10                  15
```